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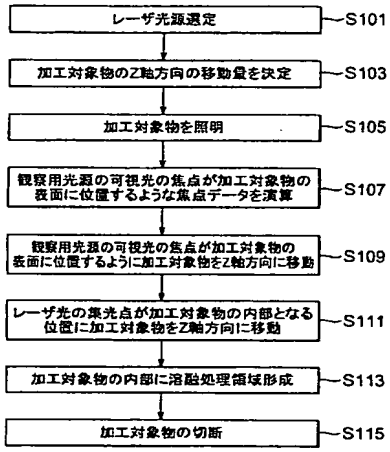
(54) Title: LASER BEAM MACHINING METHOD AND LASER BEAM MACHINING DEVICE

(54) 発明の名称: レーザ加工方法及びレーザ加工装置



S101...SELECTION OF LASER BEAM SOURCE
S103...DETERMINATION OF MOVING AMOUNT OF WORK IN Z-AXIS DIRECTION
S105...ILLUMINATION OF WORK
S107...CALCULATION OF SUCH FOCUS POINT DATA THAT FOCUS POINT OF VISIBLE LIGHT OF LIGHT SOURCE FOR OBSERVATION IS POSITIONED ON SURFACE OF WORK
S109...MOVEMENT OF WORK IN Z-AXIS DIRECTION SO THAT VISIBLE LIGHT OF LIGHT SOURCE FOR OBSERVATION IS POSITIONED ON SURFACE OF WORK
S111...MOVEMENT OF WORK IN Z-AXIS DIRECTION TO SUCH A POSITION THAT CONDENSED POINT OF LASER BEAM COMES INSIDE WORK
S113...FORMATION OF FUSING PROCESSING AREA INSIDE WORK
S115...CUTTING OF WORK

(57) Abstract: A laser beam machining method and a laser beam machining device capable of cutting a work without producing a fusing and a cracking out of a predetermined cutting line on the surface of the work, wherein a pulse laser beam (L) is radiated on the predetermined cut line (5) on the surface (3) of the work (1) under the conditions causing a multiple photon absorption and with a condensed point (P) aligned to the inside of the work (1), and a modified area is formed inside the work (1) along the predetermined cut line (5) by moving the condensed point (P) along the predetermined cut line (5), whereby the work (1) can be cut with a rather small force by cracking the work (1) along the predetermined cut line (5) starting from the modified area and, because the pulse laser beam (L) radiated is not almost absorbed onto the surface (3) of the work (1), the surface (3) is not fused even if the modified area is formed.

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